



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 627 Main Street, Worcester MA 01608 • 508-792-7650

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June 27, 2013

Mr. Joseph Dufresne
Saint-Gobain Abrasive, Inc. and
Saint-Gobain Ceramic and Plastics,
Inc.
One New Bond Street
Worcester, MA 01506

RE: Worcester
Transmittal No.: X254594-A-1
Application No.: CE-13-006
Class: OP
FMF No.: 130510
AIR QUALITY PLAN APPROVAL

Dear Mr. Dufresne:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, reviewed the Limited Plan Application ("Application") listed above and on April 26, 2013, approved the proposed installation and operation of a cartridge particulate collector serving kiln no. 526 -03 at your facility located at One New Bond Street in Worcester, Massachusetts ("Facility").

On June 12, 2013, revisions to the cartridge particulate collector that included a change in cartridge collector model, number of cartridge filters, air flow rating and stack exhaust gas exit velocity, were submitted on revised LPA-Process (BWPAQ 01) and BWP AQ Baghouse /Filter forms to MassDEP. The emission limits for particulate matter ("PM") have not changed.

MassDEP has determined that the revised Application dated June 12, 2013, is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please replace the plan application forms with the revised sheets as they contain correct information regarding the cartridge collector and air flow from the fan. This Plan Approval stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

The rotary kiln known as Emission Unit 03 in plant 526, referred to by the Permittee as 526-03, is utilized for the manufacture of vitrified ceramic abrasives. It was installed before 1970 when the kiln was equipped with a pre-burner in the production of poppant. The pre-burner is no longer operative and the original process discontinued about 1995. Presently, the process consists of mixing aluminum oxide with bond material (binders) for the manufacture of sandpaper and grinding wheels. The material is fed into a rotary kiln utilizing natural gas and operating at a temperature of 1250⁰ C. After cooling, the aluminum oxide material passes from the kiln and is sized, sorted and bagged in super sacks as product. The kiln will be equipped with one dust collector that will capture fines. This baghouse is vented outdoors.

On December 4, 2012, a Notice of Noncompliance, NON-CE-12-7018 (the “NON”), was issued for the discharge of visible emissions equal to or greater than 20% opacity, in violation of 310 CMR 7.06. Visible emissions have been associated with the S-3 inorganic bond material. The NON requires that the kiln be equipped with air pollution control equipment to minimize visible emissions. A Revised Plan Approval Application, TR# X254594 was submitted to the MassDEP on June 12, 2013, for the installation and operation of a Torit cartridge dust collector (DFO 4-48) rated at 14,000 acfm with 48 cartridges.

MassDEP has determined that for this Plan Approval, Best Available Control Technology (“BACT”) is the proposed emission limits for Particulate Matter with an aerodynamic diameter of 2.5 micrometers or less (“PM 2.5”) of 0.0013 grains per actual cubic foot (gr/acf)(0.002 gr/dscf) and 0.071 pounds per hour (lbs/hr). This will be achieved with a baghouse which is capable of filtering PM2.5 that has an aerodynamic diameter of 0.30 micrometers or less. The limits are more stringent than the PM2.5 limit identified in the MassDEP Top Case BACT Guidelines for similar but not identical equipment (rotary ceramic kilns) located at CertainTeed (TRX236086) in Norwood, Mass. (BACT was established as 0.01 grains per dry standard cubic feet). Visible emission shall not exceed 5% at any time.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Pollution Control Device (PCD)
526-03	North American Rotary kiln for the production of vitrified ceramic abrasives	5.5 Mm Btu/hr using natural gas	Donaldson Torit (DFO 4-48) Downflo dust collector equipped with 48 woven Thermo-Web™ cartridge filters <ul style="list-style-type: none"> • 148 ft² filtration per filter element • 14000 Acfm • Computer modeled pulse pressure cleaning

Table 1 Key:

Acfm= actual cubic feet per minute

PM= particulate matter means any airborne finely divided solid or liquid material, other than uncombined water

PCD = Pollution Control Device

%= percent

Mm Btu/hr= million British thermal units per hour

EU#= Emission Unit number

Ft²= square foot

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2:

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit
526-03	1. The maximum inlet temperature to the cartridge collector shall be less than or equal to 265 ⁰ F	PM2.5 (Ceramic Dust and Fume)	0.071 lbs/hr 0.052 tons per month 0.32 tons/yr 0.0013 grains/actual cubic foot
	2. NA	Opacity	≤5% opacity

Table 2 Key:

% = percent

EU# = Emission Unit Number

Tons/yr=tons per year during a rolling 12 month period

≤= less than or equal to

lbs/hr = pounds per hour

NA= not applicable

PM2.5= particulate matter that is 2.5 micrometers in diameter and smaller

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

Table 3	
EU#	Monitoring and Testing Requirements
526-03	1. The Permittee shall install, continuously operate, and maintain the approved air pollution control equipment in a manner that assures compliance with this Plan Approval.
	2. The Permittee shall install, operate, and maintain the approved air pollution equipment in accordance with the manufacturers' specifications.
	3. The Permittee shall conduct stack testing and EPA method 9 opacity evaluation of the stack serving the rotary kiln and the associated air pollution control equipment within 120 days of this Plan Approval.
	4. The Permittee shall ensure that the air pollution equipment as approved herein is not bypassed at any time that the kiln is in operation.
	5. The approved baghouse shall operate at a pressure drop of 11 inches of water gauge or a pressure that will be determined during testing and be incorporated herein.
	6. The approved baghouse shall be equipped with a magnehelic to continuously monitor the pressure drop.
	7. The approved baghouse shall operate at no greater than 265 ⁰ F or within a temperature range that will be determined during compliance testing and be incorporated herein.

Table 3	
EU#	Monitoring and Testing Requirements
	8. The approved baghouse shall be equipped with a temperature sensing device to monitor the inlet temperature of the baghouse.
	9. The approved baghouse shall be equipped with an audible and visual alarm that alerts the operator that the air pollution control equipment is operating outside of its approved pressure and temperature range.
	10. The Permittee shall have sufficient replacement cartridges and/ or filter media available on site.
	11. The Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13.

Table 3 Key:

EU# = Emission Unit Number

DSCF=dry standard cubic feet

%= percent

Table 4	
EU#	Record Keeping Requirements
526-03	1. The Permittee shall maintain a copy of this Plan Approval, underlying Application, the most up-to-date SOMP for the EU(s) approved and supplemental information regarding optimal operating parameters gathered from stack testing herein on-site.
	2. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	3. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	4. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report .
	5. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	6. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel, upon request.

Table 4	
EU#	Record Keeping Requirements
	7. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
Facility-Wide	8. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.

Table 4 Key:

EU# = Emission Unit Number

SOMP = Standard Operating and Maintenance
Procedure

PCD = Pollution Control Device

USEPA = United States Environmental Protection
Agency

Table 5	
EU#	Reporting Requirements
526-03	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall submit to the MassDEP within 45 days of this Plan Approval, the manufacturer’s specifications, drawings that identify the locations of manometers and temperature sensing devices, standard operating procedures and standard maintenance and cleaning procedures for the air pollution control equipment. A copy of these specifications and procedures shall remain on site at all times.
	3. The Permittee shall submit to MassDEP for approval, a stack emission test and EPA Method 9 protocols, at least 30 days prior to the emission testing.
	4. The Permittee shall submit the results of the emission stack testing and EPA method 9 opacity evaluation of the stack serving the rotary kiln within 30 days of the testing.
	5. The Permittee shall submit to the MassDEP the pressure drop that were determined during the stack test to be the operating parameter that would ensure optimal operation of the air pollution control equipment.
	6. The Permittee shall notify the Central Regional Office of MassDEP, BWP Permit Chief by telephone: 508-767-2845, email: CERO.Air@massmail.state.ma.us or fax : 508-792-7621, as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	7. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30 days from MassDEP’s request.

Table 5 Key:

EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee is subject to and shall comply with the Special Terms and Conditions as contained in Table 6:

Table 6	
EU#	Special Terms and Conditions
526-03	1. The Permittee shall install, continuously operate, and maintain additional air pollution control equipment consisting of a high efficiency particulate filter (HEPA) unit if stack testing results demonstrate that the existing baghouse unit alone cannot control PM 2.5 to 0.0013 grains /scf.
	2. If the baghouse unit fails to meet the emission limits identified in Table 2 then the Permittee shall notify the MassDEP within 10 days of the failed test.
	3. The Permittee shall submit a schedule to the MassDEP with the purchase, installation and testing of the additional air pollution equipment within 60 days of the failed test.
	4. The Permittee shall conduct stack testing to ensure that the outlet concentration of the newly installed HEPA unit does not exceed 0.0013 grains /scf within 120 days of installing the HEPA unit.
	5. The Permittee shall submit a stack testing protocol to the MassDEP for approval for testing the air pollution control equipment that includes the HEPA unit at least 30 days prior to the scheduled testing.
	6. The Permittee shall submit the stack testing report within 30 days of the testing to the MassDEP.

Table 6 Key:

ascf= actual standard cubic feet
HEPA= High efficiency control

EU# = Emission Unit Number

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.”
- C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
526-03	45	2.5	46.9	<265

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- K. Pursuant to 310 CMR 7.01(3) and 7.02(3) (f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6) (b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations. The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the **revised** application submittal to MassDEP on June 12, 2013.

Should you have any questions concerning this Plan Approval, please contact Maria L'Annunziata by telephone at 508.767.2748, or in writing at the letterhead address.

Roseanna E. Stanley
Acting Permit Chief
Bureau of Waste Prevention

Enclosure

ecc: Worcester Department of Inspection Services
MassDEP/Boston - Yi Tian
MassDEP/Boston – Kim McCoy
Robert Capaccio